New method may help detect marker for Alzheimer's disease earlier

April 16 2012

Use of a new drug to detect the beta-amyloid plaques in the brain that are hallmark signs of Alzheimer's disease may help doctors diagnose the disease earlier, according to research that will be presented as part of the Emerging Science program (formerly known as Late-Breaking Science) at the American Academy of Neurology's 64th Annual Meeting in New Orleans April 21 to April 28, 2012.

Currently, Alzheimer's disease can only be definitively confirmed through the detection of amyloid plaques and/or tangles in the brain during autopsy after death or with a brain tissue biopsy. The new method uses the drug florbetaben as a tracer during a PET scan of the brain to visualize amyloid plaques during life.

In order to prove that the florbetaben PET scan detects beta-amyloid in the brain, the global phase III study directly compared brain regions in the PET scan to respective brain regions after death during autopsy.

For the study, more than 200 participants nearing death (including both participants with suspected Alzheimer's disease and those without known dementia) and who were willing to donate their brain underwent MRI and florbetaben PET scan. The amount of plaque found in the 31 participants who reached autopsy was then compared to the results of the scans. A total of 186 brain regions from these donors were analyzed along with 60 brain regions from healthy volunteers. Based on these 246 brain regions the study found florbetaben to detect beta-amyloid with a sensitivity of 77 percent and a specificity of 94 percent.

Comparison of the visual assessment method proposed for florbetaben for clinical practice with the post mortem diagnosis revealed a sensitivity of 100 percent and a specificity of 92 percent. Sensitivity is the percentage of actual positives that are correctly identified as positive, and specificity is the percentage of negatives that are correctly identified.

"These results confirm that florbetaben is able to detect beta-amyloid plaques in the brain during life with great accuracy and is a suitable biomarker," said study author Marwan Sabbagh, MD, director of Banner Sun Health Research Institute in Sun City, Ariz., and a Fellow of the American Academy of Neurology. "This is an easy, non-invasive way to assist an Alzheimer's diagnosis at an early stage. Also exciting is the possibility of using florbetaben as tool in future therapeutic clinical research studies where therapy goals focus on reducing levels of beta-amyloid in the brain."

Provided by American Academy of Neurology